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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,186	07/15/2003	Robert J. Gartside	ABBLUM/261/US	8685

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Alix, Yale & Ristas, LLP
750 Main Street
Hartford, CT 06103-2721

EXAMINER	
DANG, THUAN D	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 02/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,186	GARTSIDE ET AL.	
	Examiner	Art Unit	
	Thuan D. Dang	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/23/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwab et al (6,271,430) in view of the admitted prior art.

Schwab discloses a process including a step of autometathesis of a C4 stream containing butenes, isobutene, and paraffins in the presence of a catalyst of group VI metal to react butene-1 and butene-2 to produce a product containing ethylene, pentene, propylene (col. 2, line thru col. 3, lines 46).

Schwab discloses that the product is separated into streams including ethylene, propylene (as the desired product), butane(s), and heavier olefins (figures; col. 4, lines 5-25).

Schwab discloses that the heavier olefinic stream mixed with ethylene recovered from the autometathesis effluent and fresh ethylene is fed to another metathesis reactor in which additional propylene is produced (see figure).

As discussed above, the examine recognizes there are several minor differences from the claimed process and the present process. (1) Schwab does not disclose recover isobutylene after the autometathesis reaction, (2) Schwab does not disclose the ratio of the molar ratio of the external fresh ethylene to the n-butenes in the C4 olefinic stream.

However, it would have been obvious to one having oridinary skill in the art at the time the invention was made to have modified the Schwab process by removing isobutylene from the autometathesis process before the recovered butenes is recycled to the autometathesis reactor since as disclosed by Schwab, isobutylene does not participate in the autometathesis reaction (the abstract; col. 2, lines 55-56; col. 3, lines 41-43).

It would have been obvious to one having oridinary skill in the art at the time the invention was made to have modified the Schwab process by selecting an appropriate amount of fresh ethylene fed to the second metathesis since this amount depends on the amount of ethylene recovered from the autometathesis reaction. Further, the concentration of the reactants in the a

reaction is a parameter which must be selected to optimize the process. It has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claimed are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller* 105 USPQ 233, 255 (CCPA 1955). *In re Waite* 77 USPQ 586 (CCPA 1948). *In re Scherl* 70 USPQ 204 (CCPA 1946). *In re Irmscher* 66 USPQ 314 (CCPA 1945). *In re Norman* 66 USPQ 308 (CCPA 1945). *In re Swenson* 56 USPQ 372 (CCPA 1942). *In re Sola* 25 USPQ 433 (CCPA 1935). *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

As admitted in the specification on page 4, lines 18-27, removing isobutene by catalytic hydroisomerization deisobutylenizer is well-known.

As admitted on page 1, lines 22-31 of the specification, one having ordinary skill in the art would recognize that the cracked C4 stream also contains butadiene. Obviously, the amount of butadiene in the stream for the autometathesis must be selected as called for in claims 4 and 5.

Schwab uses a group VI metal supported on silica (col. 6, line 35 thru col. 7, line 15). Although, Schwab does not disclose specifically using tungsten, It would have been obvious to one having oridinary skill in the art at the time the invention was made to have modified the Schwab process by using tungsten since it expected that using any group VI metal would yield similar results.

As admitted on page 3, lines 4-16, using isomerization group IIA metal catalyst within the metathesis reaction is common.

Response to Arguments

Applicant's arguments filed 1/23/06 have been fully considered but they are not persuasive.

The argument that the prior art is directed to a the processing of a C4 olefin stream, namely "raffinate II" from which the majority of the isobutylene already has been removed, while the present invention produces propylene before the isobutene is removed (a large amount of isobutylene in the feed) is not persuasive since (1) the raffinate II is an exemplified feed in an embodiment of the prior art, (2) applicant does not claim so. Applicants do not claim a feed containing isobutylene and its amount (see claims).

The argument that the invention specifically promotes reactions 2, 3, 6, and 7 while the prior art autometathesis has only reactions 2 and 3 is not persuasive since applicants do not claim any of these reactions (see claims).

The argument that the C4 stream from the fractionator of the present invention is not recycled to the autometathesis reactor as per Schwab, but sent to another fractionation specifically to remove the unreacted isobutylene is not persuasive since applicants not exclude the step of recycling the isobutylene (see claims).

The argument that differences as discussed above make the presently claimed process have advantages is not persuasive since applicants do not claim features make the claimed process distinguishable from the prior art process.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

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